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The following Reports were received too late for insertion in the Annual Report of the Council.

Adelaide Observatory, South Australia.
(*Director, Mr. G. F. Dodwell, Government Astronomer.*)

Meridian and Time-Service.—The transit-circle telescope was used for the observation of clock stars of the Sydney zone (−52° to −64°). The number of observations is shown in the following table:—

	Observations in R.A.	Declination.
Intermediate stars	1500	1497
Clock stars for time and longitude	249	
Azimuth stars	99	
Totals	1848	1497
Determinations of collimation	134	
,, ,, level	161	
,, ,, nadir point	111	

Azimuths were also determined from high and low stars north of the zenith.

A study of the changes of level of the transit-circle telescope during the last twenty-four years shows a remarkable effect of unsymmetrical exposure to the weather and surface drainage on the E. and W. sides of the transit buildings. Owing to this cause the ground on the W. side expands more than the E. side in the winter, raising the level on that side, and contracts more than the E. side in the summer, the west end being relatively low. The rainfall and temperature data enable these changes, which lag slightly behind the meteorological causes, to be predicted with a fair degree of approximation. An experiment made this summer of watering the ground on the W. side two mornings each week has met with an immediate result in the direction expected, and it now appears possible to maintain the level of the transit-circle telescope in equilibrium, by supplying the balance of moisture required on the E. or W. side as the case may be.

The time-ball at the Semaphore was dropped at 1 p.m. daily (Sundays, Christmas Day, and Good Friday excepted), the fall of the ball being recorded at the Observatory by return signal automatically sent by the time-ball mechanism. The time-ball at Port Pirie has also been dropped at 1 p.m., this service being under the charge of the Assistant Harbour-master at the port, who receives a time-signal at noon daily from the Observatory, by means of which the time-ball clock is corrected. On April 11, a wireless receiving apparatus was installed at the Port Pirie Time-Ball Station, and the midday wireless time-signals from Adelaide have been used instead of land-line signals for correcting the clock. The wireless time-signals for shipping (those of the Onogo system)

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have been sent at midday and midnight each day by the Adelaide Radio Station, which is in telegraphic communication with the Observatory. The signals proceed from the Observatory mean-time clock and are automatically transferred to the wireless circuit.

Field Work.—Latitude and longitude stations were established at four stations, Nairne, Goolwa, Port MacDonnell, and Mt. Ruskin. Star observations were taken by the almucantar method with an altazimuth instrument provided with first-class level on the vertical circle. Longitude signals from the Observatory *via* the Adelaide Radio Station were received by means of a portable wireless receiving outfit. At Mt. Ruskin, where, for some unknown reason, the Adelaide wireless signals could not be heard, though sent on usual strength, the Melbourne radio time-signals were made use of. A special set of time-signals sent from the Melbourne Observatory to the Hector Observatory, New Zealand, was also received with the wireless receiving installation at the Adelaide Observatory. The preparation of tables for facilitating almucantar computations for observations in latitudes 26° to 40° S. has been commenced. The Surveyor-General is assisting in this work, and Mr. C. J. Merfield, of Melbourne, has lent a set of manuscript tables which have been of great assistance.

Terrestrial Magnetism.—Observations of magnetic declination, horizontal intensity, and inclination have been made at Nairne, Goolwa, Port MacDonnell, Mt. Ruskin, Winceby Island, and Althorpe Island. Inclination was also determined at Port Pirie, supplementing the other observations previously made. Preliminary observations of magnetic disturbances reported to exist in Spencer's Gulf were made during a voyage of the Harbours Board steamer *Conqueror* in that gulf in April. The results showed that the values of E. declination are from one to two degrees above the normal values in the upper half of the gulf. A magnetic survey of an area of the bed of the River Torrens at Campbelltown was made in an attempt to locate a pumping engine and suction pipe carried away in a flood during the previous winter. Professor Kerr Grant supplemented these observations by the use of a Hughes induction balance. The combined result was the recovery of a number of pieces of the suction pipe and the location of a large "island" of magnetic disturbance over the site of the former pump hole, a large excavation now filled with flood deposit. Owing to the rapid inflow of water, digging for the engine in this site was postponed till a future dry season. Professor Grant also co-operated in the latitude, longitude, and magnetic observations at four of the field-stations previously mentioned.

Seismology.—The Milne Seismograph was continuously at work during the year, and tabulated records were sent as usual to the Shide Observatory, Isle of Wight.

Miscellaneous.—The Board of Visitors held their annual visitation on December 6. The equatorial telescope has been used principally in connection with the public visits to the Observatory on Friday evenings.

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Sydney Observatory.

(*Director, Mr. W. Ernest Cooke, Government Astronomer.*)

The outstanding feature of the year has been the recommencement of the systematic meridian observations under improved conditions. These were started on March 11, the working programme being the officially recognised list of intermediate stars for the region 51° to 65° south declination. It is proposed to observe each of these at least ten times, using for standards those stars of the international list of fundamentals which have been recently well observed at the Cape, of which the proper motions are known. Up to the end of the year the two observers, Messrs. Raymond and Cranney, took 4728 complete observations of 892 stars, and the reductions are up to date.

This has naturally delayed progress to some extent on the reductions of the old transit observations, but we have had a certain amount of energy available which will soon be required for measuring fresh astrographic plates, and so the older routine work has been kept steadily going.

For the rest, the concluding words of our last report (*M.N., R.A.S.*, **78**, 401, 1918) are still applicable.

The astrograph is practically completed for a fresh start, but this is still being delayed by circumstances beyond the astronomer's control.

No definite programme has yet been arranged for the 11½-inch equatorial, for two reasons:—

(1) The dome is almost unworkable.

(2) The astrographic work, both past and future, has first claim; and until the new observational programme is in full swing it is unwise to fritter away our limited energy upon anything else. The keynote of the observatory at the present time is concentration upon the astrographic work, including of course the meridian portion.

The usual routine duties, including University lectures, time-service, seismograph, reception of visitors, etc., have been maintained as heretofore.